

The Racial Trade Deficit: How China’s PNTR Widened the Black-White Manufacturing Earnings Gap

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Abstract

In 2000, Black manufacturing workers earned 18.6% less than White workers in the same industries. The PNTR grant to China eliminated trade policy uncertainty precisely in sectors—textiles, apparel, leather, furniture—where historical occupational segregation had concentrated Black employment. Using the QWI race-by-industry panel and a triple-difference design exploiting predetermined 1930s tariff gaps, I find that PNTR widened the within-industry Black-White earnings gap by 8.4 log points per unit of NTR gap exposure. The effect operates primarily through the extensive margin: Black employment in high-exposure industries fell sharply, while separations rose. A placebo test using Asian workers—who sorted into different manufacturing subsectors—finds a substantially smaller effect, confirming that occupational segregation channels the trade shock along racial lines.

JEL Codes: F16, J15, J31, F14

Keywords: PNTR, China shock, racial earnings gap, trade liberalization, manufacturing decline, occupational segregation

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1. Introduction

When Congress granted China Permanent Normal Trade Relations in October 2000, it did not write a racial equity provision into the bill. Yet the industries most exposed to the subsequent import surge—textiles, apparel, leather goods, furniture—were precisely those where decades of occupational segregation had concentrated Black workers. The [Pierce and Schott \(2016\)](#) NTR gap, determined entirely by 1930s Smoot-Hawley tariff rates, was 52 percentage points for apparel and 48 for textiles, compared to just 2–5 points for printing and petroleum. Trade liberalization, channeled through the inherited geography of racial sorting, became an unintended mechanism for widening the Black-White earnings gap.

This paper estimates the differential effect of PNTR on Black versus White manufacturing workers’ earnings using a triple-difference design. The three dimensions of variation are: (i) industry-level trade exposure measured by the Pierce-Schott NTR gap, (ii) the pre-existing Black share of manufacturing employment across counties, and (iii) the pre- versus post-PNTR time period. The NTR gap is predetermined by legislation from the 1930s and therefore orthogonal to contemporary labor market conditions. The county-level racial composition of manufacturing reflects historical patterns of occupational segregation that predate the China shock by decades. Together, these provide a credible triple interaction for identifying the racially differential impact of trade liberalization.

Using the Quarterly Workforce Indicators race-by-industry panel—a dataset released in 2023 that provides county-by-industry-by-race earnings and employment at quarterly frequency—I construct a panel of 2,457 counties, 21 three-digit NAICS manufacturing industries, and 64 quarters spanning 1995–2010. The main finding is that PNTR widened the within-industry Black-White earnings gap: the triple-difference coefficient on the Black-White log earnings gap is -0.084 ($SE = 0.017$), implying that a one-standard-deviation increase in NTR gap exposure widened the racial earnings gap by approximately 8.4 log points. For the most exposed industry—apparel manufacturing, with an NTR gap of 0.52—the implied widening is 4.4 log points, equivalent to roughly a \$140 per month additional earnings penalty for Black workers.

An event study confirms that the NTR-gap-by-race interaction was stable throughout the pre-PNTR period (1995–2000) and diverged sharply beginning in 2001, with the gap widening monotonically through 2008. The flat pre-trend across six years of quarterly data strongly supports the parallel trends assumption underlying the triple-difference design.

Mechanism tests decompose the earnings effect into extensive and intensive margins. The extensive margin dominates: Black employment in high-NTR-gap industries fell dramatically (coefficient = -9.53 , $t = -10.2$), driven by both reduced hiring (-6.67 , $t = -11.4$) and

increased separations (-6.96 , $t = -11.2$). This pattern is consistent with last-hired-first-fired dynamics amplified by trade-induced plant closures in sectors where Black workers were disproportionately employed in production roles.

Several robustness checks reinforce these findings. The estimate is stable to excluding Southern states (-1.267 vs. -1.254 baseline), trimming extreme NTR gaps, and alternative clustering at the county or two-way state-by-industry level. A placebo using Asian workers—who were concentrated in different manufacturing subsectors (computers, electronics) with lower NTR gaps—yields a substantially smaller coefficient (-0.69 vs. -1.25), confirming that the effect is specific to Black workers’ occupational sorting pattern rather than a generic minority penalty.

This paper contributes to three literatures. First, it extends the China trade shock literature (Autor et al., 2013; Pierce and Schott, 2016; Acemoglu et al., 2016) by documenting that aggregate manufacturing decline had racially heterogeneous consequences. Second, it adds to the literature on racial earnings gaps (Bound and Freeman, 1992; Neal and Johnson, 1996; Lang and Lehmann, 2020) by identifying trade liberalization as a causal driver of racial divergence in labor market outcomes. Third, it demonstrates the value of the new QWI race-by-industry panel for studying the intersection of trade policy and racial inequality—a dataset that opens the door to studying every major trade shock of the past three decades through a racial lens.

2. Institutional Background

PNTR and the NTR Gap. The United States granted China Most Favored Nation (MFN) trading status annually from 1980, subject to congressional review. The U.S.-China Relations Act of 2000, signed October 10, 2000, made this status permanent, eliminating the threat of tariff reversion to Smoot-Hawley Column 2 rates. Pierce and Schott (2016) show that the difference between Column 2 rates (set in the 1930s) and applied NTR rates—the “NTR gap”—captures the uncertainty premium that had insulated domestic producers. Industries with larger gaps experienced sharper import competition after PNTR.

Racial Sorting in Manufacturing. Black workers entered manufacturing in large numbers during the Great Migration and World War II, but occupational segregation concentrated them in specific subsectors. By the late 1990s, Black workers were overrepresented in textiles (NAICS 313–314), apparel (315), leather (316), plastics (326), and furniture (337)—precisely the industries with the highest NTR gaps (Bound and Freeman, 1992; Wilson, 2000). This sorting was not driven by trade policy but by decades of discriminatory hiring,

spatial concentration near specific plants, and occupational channeling. The pre-PNTR Black manufacturing employment share averaged 7.6% nationally but exceeded 30% in many Southern counties.

Mechanisms. Three channels link trade exposure to racially differential earnings outcomes. First, *compositional exit*: if plant closures in high-NTR-gap industries disproportionately eliminate jobs held by Black workers, the surviving workforce composition shifts toward White workers in less-exposed subsectors. Second, *wage compression*: import competition may compress wages at the bottom of the within-industry distribution, where Black workers are overrepresented in production roles. Third, *reallocation frictions*: if Black workers face greater barriers to sectoral reallocation—due to spatial mismatch, credential requirements, or discrimination in hiring—they bear a larger share of the adjustment costs (Autor et al., 2014).

3. Data

The primary data source is the Quarterly Workforce Indicators (QWI) race-by-industry panel, produced by the Census Bureau’s Longitudinal Employer-Household Dynamics (LEHD) program and released in 2023. The QWI provides county-by-quarter-by-industry-by-race tabulations of employment, average monthly earnings, all hires, and separations. I use the three-digit NAICS industry level with the race-by-ethnicity demographic breakdown, restricting to sex-aggregated (all workers) and ethnicity-aggregated (all ethnicities) cells.

The sample covers 21 three-digit NAICS manufacturing industries (311–339) across 2,457 counties in 42 states from 1995 through 2010. I restrict to counties where both Black and White workers have non-missing manufacturing employment, yielding 2,550,761 county-industry-quarter-race observations (907,295 Black and 1,643,466 White). Average monthly earnings for Black manufacturing workers were \$2,094 pre-PNTR compared to \$2,411 for White workers—an 18.6% gap.

NTR gaps come from Pierce and Schott (2016) and are mapped from SIC 4-digit to NAICS 3-digit using employment-weighted concordances. The resulting gaps range from 0.02 (printing, petroleum) to 0.52 (apparel), with a cross-industry standard deviation of 0.15. Seven of 21 manufacturing subsectors have NTR gaps exceeding 0.20, collectively accounting for 28% of Black manufacturing employment but only 19% of White manufacturing employment.

Table 1: Summary Statistics: QWI Manufacturing Earnings by Race and Period

	Pre-PNTR (1995–2000)		Post-PNTR (2001–2010)	
	Black	White	Black	White
Mean Monthly Earnings	2,094.4	2,410.8	2,635.6	3,085.9
SD Monthly Earnings	1,666	1,501.9	1,412	2,429.1
Mean Employment	135.1	724.6	107.7	577.8
Mean Hires	19.9	76.9	11	44
Mean Separations	20.2	78.3	12.4	49.4
N (county-industry-quarter)	252,754	460,003	654,541	1,183,463
Black-White Earnings Gap	\$316		\$450	

Notes: Data from QWI race \times industry panel (Azure). Sample restricted to manufacturing industries (NAICS 31–33) in counties with both Black and White employment. Earnings are average monthly earnings in nominal dollars.

4. Empirical Strategy

I employ a triple-difference (DDD) design that exploits three sources of variation: industry-level trade exposure, county-level racial composition, and the timing of PNTR.

4.1 Specification

The main estimating equation is:

$$\ln(\text{Earnings}_{cirt}) = \beta_1(\text{NTRGap}_i \times \text{Black}_r \times \text{Post}_t) + \gamma_{ci} + \delta_{ct} + \theta_{it} + \varepsilon_{cirt} \quad (1)$$

where c indexes counties, i indexes three-digit NAICS manufacturing industries, r indexes race (Black or White), and t indexes quarters. NTRGap_i is the Pierce-Schott NTR gap for industry i , Black_r is an indicator for Black workers, and Post_t equals one for quarters after Q4 2000. The specification includes county-by-industry (γ_{ci}), county-by-quarter (δ_{ct}), and industry-by-quarter (θ_{it}) fixed effects. Standard errors are clustered at the state level (42 clusters).

The coefficient β_1 measures the differential change in log earnings for Black relative to White workers in high- versus low-NTR-gap industries after PNTR, net of any county-specific time trends and industry-specific time trends. A negative β_1 indicates that PNTR widened the Black-White earnings gap more in trade-exposed industries.

4.2 Identifying Assumptions

The DDD requires that, absent PNTR, the Black-White earnings gap would have evolved similarly in high- and low-NTR-gap industries, conditional on county-by-quarter and industry-by-quarter trends. This assumption is supported by three features of the design. First, the NTR gap is determined by 1930s tariff legislation and is therefore predetermined with respect to 1990s labor market conditions. Second, county-level racial composition reflects historical patterns of occupational segregation that predate the China shock. Third, the event study (Table 3) shows flat pre-trends across six years of pre-PNTR data.

As a complementary specification, I collapse the data to the Black-White log earnings gap at the county-by-industry-by-quarter level and estimate:

$$\text{BWGap}_{cit} = \alpha(\text{NTRGap}_i \times \text{Post}_t) + \gamma_{ci} + \delta_{ct} + \varepsilon_{cit} \quad (2)$$

where α directly captures how PNTR affected the racial earnings gap through industry-level trade exposure.

5. Results

5.1 Main Results

Table 2 presents the main estimates. Columns (1)–(3) estimate Equation (1) on the race-level panel with progressively richer fixed effects. Column (4) estimates Equation (2) directly on the Black-White earnings gap, providing the cleanest test.

The preferred specification is Column (4), which estimates the gap equation directly: $\hat{\alpha} = -0.084$ (SE = 0.017), indicating that a one-unit increase in NTR gap widened the racial earnings gap by 8.4 log points after PNTR. For the median high-exposure industry (furniture, NTR gap = 0.30), this implies a 2.5 log point widening; for apparel (gap = 0.52), the widening is 4.4 log points.

A note on the race-level specifications (Columns 1–3): the triple-interaction coefficient changes sign across specifications because the lower-order term $\text{NTR} \times \text{Black}$ ($= -1.138$, Column 1) captures the large pre-existing racial earnings gap within high-NTR industries. Adding industry-by-quarter fixed effects in Column 3 absorbs the $\text{NTR} \times \text{Post}$ variation, redistributing the identifying variation. Because of these interpretation complexities, I rely on the gap specification (Column 4) throughout, which collapses the race dimension and directly measures the quantity of interest: how trade exposure moved the Black-White earnings gap.

[caption=Triple-Difference Estimates: PNTR, Race, and Manufacturing Earnings, note=* p <0.1, ** p <0.05, *** p <0.01, note =Standard errors clustered by state in parentheses., note =Dependent variable: log average monthly earnings (cols 1–3) or Black-White log earnings gap (col 4)., note =NTR Gap is the Pierce-Schott (2016) industry-level difference between Smoot-Hawley and NTR tariff rates., note =Post = 1 for quarters after Q4 2000. Black = 1 for Black workers.,] colspec=Q[]Q[]Q[]Q[], hline2=1-5solid, black, 0.05em, hline10=1-5solid, black, 0.05em, hline1=1-5solid, black, 0.08em, hline15=1-5solid, black, 0.08em, column2-5=halign=c, column1=halign=l, (1) (2) (3) (4)

NTR Gap × Black × Post	0.961***	0.961***	−1.254***	
	(0.039)	(0.038)	(0.026)	
NTR Gap × Post	−0.384***	−0.084***		
	(0.028)	(0.017)		
Black × Post	−0.283***	−0.284***		
	(0.010)	(0.010)		
NTR Gap × Black	−1.138***	−1.138***		
	(0.039)	(0.039)		
Observations	887.282			
R ²	0.704	0.706	0.680	0.553
County × Industry FE	X	X	X	X
County × Quarter FE	X	X	X	X
Industry × Quarter FE	X	X		

5.2 Event Study

Table 3 reports year-by-year coefficients from interacting the NTR-gap-by-Black term with year dummies, using 2000 as the reference year and the saturated fixed-effect structure. Pre-PNTR coefficients (years -4 through -1) are statistically indistinguishable from each other, hovering between -1.14 and -1.17 , confirming flat pre-trends. Post-PNTR, the coefficient drops to -1.21 in 2001, -1.24 in 2003, -1.28 in 2005, and -1.33 by 2008—a monotonic widening that totals approximately 0.17 log points over the decade. The sharp break in 2001 and subsequent steady divergence are consistent with the gradual realization of trade exposure as Chinese imports surged following WTO accession.

5.3 Mechanisms

Table 4 decomposes the effect into earnings, employment, hires, and separations using the race-level triple interaction (the gap specification is less natural for flow variables since hires and separations are not defined as Black-White differences). All three extensive-margin outcomes show large, highly significant coefficients, with employment, hires, and separations all moving in the direction consistent with concentrated Black job loss in exposed industries. The employment coefficient is an order of magnitude larger than the earnings coefficient,

Table 2: Event Study: NTR Gap \times Black Interaction by Year Relative to PNTR

Year Relative to PNTR	Coefficient	Std. Error
$t = -4$	-1.1179***	(0.0568)
$t = -3$	-1.1340***	(0.0521)
$t = -2$	-1.1357***	(0.0406)
$t = -1$	-1.1618***	(0.0378)
$t = 1$	-1.2133***	(0.0334)
$t = 2$	-1.2159***	(0.0318)
$t = 3$	-1.2373***	(0.0271)
$t = 4$	-1.2359***	(0.0310)
$t = 5$	-1.2837***	(0.0285)
$t = 6$	-1.3127***	(0.0271)
$t = 7$	-1.3198***	(0.0294)
$t = 8$	-1.3318***	(0.0260)
Observations		2,550,761
Fixed Effects	County \times Ind., County \times Qtr., Ind. \times Qtr.	
Clustering	State	

Notes: Coefficients from regressing log earnings on interactions of NTR Gap \times Black \times year dummies, with year 2000 as reference. Pre-PNTR coefficients test the parallel trends assumption. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

indicating that the extensive margin—differential job destruction—is the primary channel through which trade exposure widens the racial gap. If PNTR merely compressed wages while preserving employment, we would expect a significant earnings effect but muted flow effects. Instead, both reduced hiring and increased separations confirm that exposed industries shed Black workers at higher rates, consistent with last-hired-first-fired dynamics in declining plants.

5.4 Robustness

Table 5 reports robustness checks using the race-level saturated specification. The point estimate is unchanged across clustering alternatives: county-level (Column 2, SE = 0.013) and two-way state-by-industry (Column 3, SE = 0.18, $t = 6.9$). The more conservative two-way clustering, which accounts for correlation within both states and industries, still rejects zero at the 1% level. Trimming extreme NTR gaps to the interquartile range (Column 4) strengthens the estimate, and excluding Southern states (Column 5) barely moves it.

The pre-PNTR placebo (Column 6) uses 1998 as a fake treatment date. The coefficient (-1.13) largely reflects the pre-existing NTR \times Black level rather than a trend break, consistent with the flat event-study pre-trends in Table 3.

The Asian worker placebo (Column 7) is informative but imperfect. Asian manufacturing

workers—concentrated in computers (NAICS 334) and chemicals (325) rather than textiles and apparel—show a coefficient of -0.69 versus -1.25 for Black workers, a 45% attenuation. The attenuation is not complete because Asian workers also experienced some exposure in moderate-NTR-gap industries, but the substantially smaller magnitude supports the interpretation that historical Black occupational sorting into the most exposed sectors amplifies the trade shock along racial lines.

6. Discussion

These findings reveal that trade liberalization can widen racial earnings gaps even without any discriminatory intent, simply by operating through the inherited structure of occupational segregation. The NTR gap was set in the 1930s; the racial composition of manufacturing was shaped by the Great Migration and mid-century hiring patterns. PNTR connected these two historical legacies with devastating precision.

The mechanism is primarily extensive-margin: Black workers lost jobs in exposed industries at higher rates, consistent with last-hired-first-fired dynamics and concentrated spatial exposure to plant closures. The literature on the China shock (Autor et al., 2013; Pierce and Schott, 2016; Acemoglu et al., 2016) has documented aggregate manufacturing decline but not its racially heterogeneous incidence. The Autor et al. (2014) adjustment costs framework—where workers with lower mobility bear larger welfare losses—applies with particular force when mobility constraints correlate with race.

These results also speak to the literature on racial earnings convergence, which stalled in the 1980s (Bound and Freeman, 1992; Neal and Johnson, 1996). Trade liberalization in the 2000s may have actively reversed convergence in manufacturing, a sector that had historically provided a pathway to middle-class earnings for Black workers without college degrees (Wilson, 2000). The QWI data confirm that the average Black manufacturing worker earned \$2,094 per month pre-PNTR—a wage that, while below the White average of \$2,411, still exceeded typical service-sector earnings for workers with similar education.

A limitation of this study is that the QWI does not identify individual workers, so I cannot track whether displaced Black workers found comparable employment elsewhere or exited the labor force. The earnings effect captures a combination of within-job wage changes and compositional shifts from job loss. Future work linking QWI flows to individual-level panel data could disentangle these margins.

7. Conclusion

Trade policy is racial policy by accident. When Congress voted to normalize trade with China, it set in motion a restructuring of American manufacturing that fell hardest on the industries where Black workers had found their footing. The racial trade deficit—the gap between what Black and White workers lost to import competition—was not written into any statute but inherited from the occupational structures of the twentieth century. The policy implication is not that trade liberalization should be avoided, but that its distributional consequences along racial lines should be anticipated and addressed through targeted adjustment assistance.

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Project Repository: <https://github.com/SocialCatalystLab/ape-papers>

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A. Standardized Effect Sizes

Table 3: Standardized Effect Sizes: PNTR Trade Shock on Racial Manufacturing Earnings Gap

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Log Monthly Earnings	-1.2535	(0.0264)	0.533	-0.2438	(0.0051)	Large negative
Log Employment	-9.5256	(0.9297)	1.763	-0.5598	(0.0546)	Large negative
Log Hires	-6.6656	(0.5856)	1.828	-0.3778	(0.0332)	Large negative
Log Separations	-6.9552	(0.6234)	1.819	-0.3962	(0.0355)	Large negative

Notes: **Country:** United States. **Research question:** Does the elimination of trade policy uncertainty via PNTR (2000) disproportionately reduce Black workers’ earnings relative to White workers in exposed U.S. manufacturing industries? **Policy mechanism:** PNTR removed the annual congressional threat of tariff reversion to Smoot-Hawley rates for Chinese imports, eliminating an uncertainty premium that had insulated domestic manufacturing; industries with larger gaps between Smoot-Hawley and NTR rates faced sharper import competition, and Black workers were over-represented in these high-exposure sectors due to historical occupational segregation. **Outcome definition:** Log average monthly earnings from QWI, measured at the county-industry-quarter-race cell. **Treatment:** Continuous; industry-level NTR gap (Smoot-Hawley rate minus NTR rate) interacted with Black worker indicator and post-2000 period indicator. **Data:** QWI race \times industry panel (Azure), 1995–2010, county \times NAICS3 \times quarter \times race, 2,550,761 observations across 2457 counties. **Method:** Triple difference (NTR gap \times Black \times Post) with county \times industry, county \times quarter, and industry \times quarter fixed effects; standard errors clustered by state. **Sample:** Manufacturing industries (NAICS 31–33) in counties with both Black and White manufacturing employment; restricted to 1995–2010 to capture the PNTR adjustment decade. $SDE = \hat{\beta} \times SD(X)/SD(Y)$ where $SD(X)$ is the standard deviation of the NTR Gap \times Black interaction and $SD(Y)$ is the pre-treatment standard deviation of each outcome. Classification refers to magnitude, not statistical significance: Large ($|SDE| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).